Attachment J-1

Glossary

Acceptance Testing – The testing of a system, subsystem, assembly or subassembly, in an operational environment, to ensure that the performance of the aggregate is not compromised by the integration of the newly developed or modified asset.

Administration – Information technology and floor space planning services provided to the Mission Operations Facility Division.

Affirmative Procurement – The purchase of items or products that contain recycled or recovered material. Affirmative Procurement Programs close the recycling loop by creating a marketplace for items and products made from materials collected in office and residential recycling programs

American Segment Trainer – American Segment Trainer representing a PTT software load distributed to International Partners for ISS training in their country.

Anomaly – any observed hardware failure, software fault, or human error. A departure from established procedures or performance, or a deviation of system or subsystem hardware or software performance outside of certified or approved specification limits.

Application – (1) used to describe all types of software (except PSS software), including interactive programs, displays, computations, scripts, libraries, configuration files, data files, COTS-generated software, etc.

(2) A set of files (executables, configuration files, ancillary data files, etc.) composing the software for the user or a single executable file.

Application Notebook – is an application specific repository (document or electronic) kept throughout the application life cycle. It contains all pertinent information regarding the application, including the requirements, design, modification history, build guide, user's guide, test plans, procedures and results, and all other applicable documentation.

Application Segment – The segment of IPS that enables execution of Space Shuttle FD&D applications, RUPSM, PDAC, FDPA, CPS, and PIM.

Associate Contractor Agreements – ACAs are agreements between contractors working on government contract projects that specify requirements for them to share information, data, technical knowledge, expertise or resources. Prime contractor to subcontractor relationships do not constitute ACAs.

Automated Computer Access Request (AutoCAR) System - The AutoCAR is a Mission Operations Directorate (MOD)-developed, Web-based system that manages access to over 120 MOD information systems, including the MCC and various MOD mission awareness applications, and select MOD office systems. Accounts must be renewed annually.

Availability – The portion of a specified total time that a system is in an operable and committable state where random temporary outages, within limitations and constraints of maximum allowable downtime, do not jeopardize crew or vehicle safety or prevent accomplishment of high-priority mission objectives. Ensuring timely and reliable access to and use of information.

Backup Control Center – Located at MSFC providing backup command and control functions to support ISS operations in case of the loss of command and control capabilities at MCC-H.

Cannibalization – The removal of a viable component from a system (facility or equipment) for eventual reinstallation into an inoperative system (facility or equipment) to restore it to operational condition.

Capability – The outcome achieved through a set of functions arranged into a system, provided by a mission operations facility and appropriately configured and used to accomplish an intended purpose. It is generally specified through Level-A requirements.

Capital Property – Equipment and supplies owned by the Contractor which are purchased with corporate funds.

Certification (Hardware/Software) – The formal process of approving the use of hardware and/or software in its operational environment for mission support. It uses the objective results of the V&V process in order to determine the software and/or hardware's readiness for operations.

Certification (Personnel) – The formal process that documents that an individual has accomplished all training and qualification requirements to perform a particular position, job or duty. The formal process uses objective certification standards referring to the levels of competency that must be demonstrated by an individual to qualify for that position.

Certificate of Flight Readiness (CoFR) – The process and documents that certify hardware, personnel and supporting systems are ready to support flight milestones.

Class A Software – Applies to all space flight software subsystems (ground and flight) developed and/or operated by or for NASA to support human activity in space and that interact with NASA human space flight systems. Space flight system design and associated risks to humans are evaluated over the program's life cycle, including design, development, fabrication, processing, maintenance, launch, recovery, and final disposal. Examples of Class A software for human rated space flight include but are not limited to: guidance; navigation and control; life support systems; crew escape; automated rendezvous and docking; failure detection, isolation and recovery; and mission operations.

Common Development Environment (CDE) – A support facility for development of ground systems and user applications capabilities for flight operations.

Compatibility testing – A group of interface tests between the spacecraft's transponder and the ground tracking RF equipment (i.e., receivers, transmitter & radio metric) for verifying RF telecommunication links.

COMSEC – Provides secure communications.

Confidentiality – The security goal that generates the requirement for protection from intentional or accidental attempts to perform unauthorized data reads. Confidentiality covers data in storage, during processing and in transit.

Configuration Management – The process of identifying and defining configuration items in a system, controlling the release and change of these items throughout the system life cycle, recording and reporting the status of configuration items and change requests, and verifying the completeness and correctness of configuration items.

Contracting Officer's Technical Representative (COTR) – A Government employee authorized by the contracting officer to provide technical direction to the contractor. The COTR and Alternate COTR (who may act only in the COTR's absence) are the only Government employees other than a Contracting Officer who may give technical direction to the contractor.

Control Board – A forum for controlling approval and changes to documents that are maintained under CM control. A control board can only approve baselines and associated changes within its delegated authority.

Data – Scientific, technical, or management information obtained from or required to support engineering, development, test operations, research programs, or contract administration. Data denotes recorded information, specifications, drawings, lists, and standards, and may exist as printed matter, instrument recordings, holograms, spectrograms, magnetic tapes and discs, punched cards, micrographics, sound recordings, computer programs, electronic storage media, and film.

Data Requirements Description – A detailed request for a specified data item, including purpose, content, format, references, maintenance requirements, submittal requirements and other pertinent information.

Delivery – The scheduled content, design, implementation, and testing of one or more modifications (hardware, software, or both) to one or more missions services systems that involve a mission services requirement or architecture change.

Development – Any new hardware and/or software capability being added that is not a functional enhancement or refinement to an existing capability or service**.**

Earned Value Measurement – Techniques used to measure, track, and report cost and schedule performance relative to a performance measurement baseline in accordance with ANSI/EIA-748.

End-to-End – Used to delineate the boundaries of a system. In the context of this contract, end-to-end means the two-way path from the spacecraft to the ground antenna through the ground systems, the communications systems, to the user system, such as a control center or payload processing facility.

End-to-End testing – The testing, in an operational environment, to ensure that data flows from each one end to the other end of a defined end-to-end system and meets documented performance and data flow and data accuracy requirements and data interface agreements.

Facility – (1) The integrated hardware, software, data and displays used in the performance of mission operations.

(2) The building and the environmental resources that it provides to safely support personnel and systems.

Flight Operations – Real-time command and control of vehicle and crew systems involving telemetry monitoring, commanding, analysis, communications, and data distribution and archiving.

Functionality – The outcome achieved through a set of functions arranged into a subsystem in support of a mission operations Capability. It is generally specified through Level-B requirements.

Government Furnished Property – Consists of hardware and software provided to the contractor from NASA or other United States government agencies.

Ground System – Consists of the infrastructure (i.e., facilities and tools) and the service operators required to operate the infrastructure (i.e., network monitors, facility schedulers, tape operators, system administrators, etc.).

Ground Systems Development Environment (GSDE) – used to develop ground systems for MCC-H, BCC, HSR and IPS.

Ground System Operations – This definition contains typical functions required to accomplish the operations of the telecommunications and computing assets used to deliver the services in the statement of work. These functions include but are not limited to:

- Development, modification and configuration management of operations processes and procedures in accordance with operations and service requirements, as well as capabilities and performance agreements.
- Operations of equipment and services according to operations agreements, procedures, and negotiated schedules.

Group Administrators – A privileged system user responsible for managing a discipline's workstation configuration and installing user application software.

Houston Support Room – Located in Russia representing an integrated ground facility that supports spacecraft planning, analysis, telemetry monitoring, and voice exchange in support of ISS mission operations.

Indefinite Delivery, Indefinite Quantity – A provision that enables support for new and undefined mission operations facilities and capabilities under FDOC.

Information Technology – (1) represents the set of processes and procedures for planning and securing the hardware and software in each facility to ensure the availability, integrity, and confidentiality of the information processed in the facility,

(2) The aggregate set of hardware and software in a facility.

Infrastructure Applications – Applications, regardless of origin, that are currently utilized by more than one group of Flight Controllers to provide preflight or real-time position specific data or information. The use of the application is internal (FCR and MPSR of one discipline) as well as used by other Flight Controllers (external) to manipulate their own data.

Independent Modification Delivery – Modifications to Mission Services that do not involve a requirement or architecture change.

Installation Provided – Equipment or property purchased by or for the Government for use in Facilities and User Applications and is owned by the Government.

Integrity – Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity and ensuring that a system performs its intended function in an unimpaired manner, free from unauthorized manipulation.

Interface Control Document – Documentation in the form of specifications, drawings and written record that identifies, for each side of an interface, those necessary design requirements between different contractors and/or Government agencies that will assure an agreeable and compatible interface.

ISS MOD Avionics Reconfiguration System – Represents the set of activities required to collect, analyze, generate, and distribute command and telemetry related products to customer facilities within mission operations and elsewhere among the ISS Program communities.

Level A Requirements – Provides a brief description of the overall project. This includes the basic objectives of the project, what information is needed and generated, how the project will be used, and any special formulas, timing restraints, security considerations, external interfaces, etc.

Level B Requirements – Expands upon the level A requirements by describing the major functions to be performed.

Limited Station Operations System – Provides capabilities for continuous operations of the ISS while required maintenance is performed on the primary MCC systems.

Load – All executable software and data required to run a given training session or capability.

Logistics – Sparing, shipping, courier services.

Lost service time – Total time that customers requested and were granted but for which the service was not available.

Maintenance – Preventative care to a system to ensure continued functionality and reliability.

Metric – A measurement taken over a period of time that communicates vital information about a process or activity.

Minimum Requirement – The level of performance which would be considered to fall in the "GOOD" range for performance evaluation purposes (Effective performance; fully responsive to contract requirements. Reportable deficiencies, but with little identifiable effect on overall performance.).

Mission Control Center – Houston – Is an integrated spacecraft command and control facility capable of supporting multiple space flight programs.

Mission Critical Security System – the loss of confidentiality, integrity or availability could be expected to have a severe or catastrophic adverse effect on organization operations (severe degradation in or loss of mission capability such that one or more primary functions is unachievable); organizational assets (major damage or financial loss); or individuals (severe or catastrophic harm resulting in loss of life or serious life-threatening injuries).

Mission Moderate Security System – the loss of confidentiality, integrity or availability could be expected to have a serious adverse effect on organizational operations (degradation in mission capability that permits primary functions but at significantly reduced effectiveness); organizational assets (significant damage or financial loss); or individuals (significant harm that does not involve loss of life or life-threatening injuries).

Mission Operations – This definition contains typical functions associated with mission operations for the services in the statement of work. Mission operations encompass those activities required to plan, conduct, and analyze ground operations associated with providing the services encompassed by this contract. These functions include but are not limited to:

- Pre-mission analysis
- Mission operations support including participation in the Flight Control Team
- Post-mission analysis

Mission Operations Directorate – An organization at JSC responsible for human spaceflight planning, training, and flight operations.

Mission Operations Reconfiguration System – Currently under development to provide capabilities for reconfiguring mission operations facilities in preparation for Constellation testing, training, and flight operations.

Mission readiness certification – The process of determining and demonstrating performance according to mission support requirements.

Mission Reconfiguration Products – Hardware, firmware, software, and data products used to configure service elements for usage with spacecraft.

Modification – Any change to the configuration of the facility resulting in the update to the current capabilities and services, expansion of existing capabilities and services or the addition or deletion of existing capabilities and services.

Network interface – The point of demarcation for outbound data (e.g., command data) between a tracking complex and the NASA Integrated Services Network (NISN). It is also the point of demarcation for inbound data (e.g., telemetry data) between the user and the NISN.

Operating Plan – (Op Plan) Conducted annually, prior to the start of a new FY, for the purpose of establishing budget profiles for the applicable year.

Operations Analysis – This definition contains typical functions associated with the assessment of the current performance of the ground systems and the impacts of additional loading to those services as listed in the statement of work. These functions include but are not limited to:

- End-to-end system performance monitoring, recommending appropriate changes to eliminate potential system bottlenecks and overloads; and short-term and long-term trend analysis.
- Risk analysis and management.
- Assessment of technical, schedule, and cost factors involved with the operation of systems.
- System operability and review of operation procedures, recommending or effecting changes to minimize data, voice, or video outages.

Operations Technology Facility – A distributed set of platforms and infrastructure used and led by NASA for evaluating and prototyping different technology solutions, conceptual architectures, and operations concepts for mission operations facilities.

Organizational Conflicts of Interest – The appearance of, potential for, or realized conflicts that the Government or other companies have with the FDOC contractor by reason of their perception that the FDOC contractor has unequal access to competition sensitive information, impaired objectivity in current performance, or biased influence over ground rules established by NASA for future contract competitions.

Planning – Design, analysis, and management of trajectories, use of vehicle systems, and flight and crew activities relative to mission requirements, before and during missions.

Planning, Programming, Budgeting, and Execution – A process generally conducted annually during the first quarter of each calendar year for the purpose of establishing budget profiles for the out-years

Platform Segment – The segment of IPS that provides the hardware and software to support the Application Segment.

Platform Services Software (PSS) – is used to describe the basic software services that are provided with a system (for example MAS and IPS). The software services include the Operating System, Advisory Services, Event Services, Data Acquisition, Log/Delog, Timing Services, etc.

Portable Computer System – Laptops serving as the user interface to the ISS avionics system used in the SSTF and PTT simulators.

Process – A set of activities used to convert inputs into desired outputs to generate expected outcomes and satisfy a purpose.

Project – An undertaking typically requiring concerted effort that is focused on developing or maintaining a specific product or products. Each project has its own goals, objectives, requirements, life-cycle cost, a beginning, and an end.

Reconfiguration – (1) the set of end-to-end processes that involve creating, registering, auditing, transferring, receiving, deploying, and applying data, software, and documentation for the purpose of onboard and ground systems operations before and during flight.

(2) The data and software collection, inventory management, integration, production, and distribution for the purpose of configuring facilities for flight specific ground and mission operations.

Release – The scheduled content, implementation, and testing of one or more hardware and software sustaining changes or updates to one or more missions services systems or subsystems.

Release To Operations – The notification by the contractor that formal testing has been completed and that the capability being delivered is ready for use in the operational environment.

Risk Management – The process of balancing risk with cost, schedule, and other programmatic considerations. It is an organized, systematic decision-making process that efficiently identifies, analyzes, plans, tracks, controls, communicates, and documents risk to increase the likelihood of achieving program/project goals. Risk is dispositioned via acceptance, tolerance through waiver/deviations, or mitigation.

Scheduling – This definition contains typical functions associated with the commitment of resources. These functions include but are not limited to:

- Scheduling of resources needed to provide a service
- Providing notification to customers of service availability and providing resolution of any conflicts
- Maintain schedule and resource utilization history databases

Self-contained Trainer – A standalone PTT on a desktop or laptop used for Constellation Program training.

Software Development Folder – A software specific configuration management repository that contains all pertinent information regarding the application, including the ops concepts, requirements, design, version description document, user's guide, test plans, test results, certification documents, and all other applicable documentation.

Software Production Environment – The subsystems necessary for building and managing training loads for the CxTF.

Software Production Facility – Consists of system capabilities for building and testing Space Shuttle flight software, as well as collecting, managing, and producing the sets of data that work with the flight software in support of mission requirements.

Statement of Work – A description of the effort the Contractor is to perform under the contract, including the criteria for determining whether the requirements are met.

Standard of Excellence – The level of performance which would be considered equal to the "EXCELLENT" range for performance evaluation purposes (Of exceptional merit; exemplary performance in a timely, efficient and economical manner; very minor, if any, deficiencies with no adverse effect on overall performance).

Subsystem – A collection of hardware, software and procedures, which perform an identifiable task in support of one or more systems.

Success Criteria – Specific accomplishments that must be satisfactorily demonstrated to meet the objectives of a technical review so that a technical effort can progress further in the life cycle.

Supporting Data Files – Supporting data files for user applications contain commands, settings, limits, configuration info, etc., which modify the behavior and configure an application to perform its nominal operation. This includes configuring initial settings, user interface definition, reference data, etc. These files do not contain executable, byte, or source code. Examples are display files, limit files, trajectory tables, etc.

Surveillance – Traditional NASA management philosophy of watchful care or management; supervision. An (sometimes) intrusive method used to gather Contractor product and process data through on-site and in-series involvement. It entails a form of control over the process itself. Surveillance is an involvement in an activity, principally through inspection with review and approval authority implicit to the degree necessary to assure that a process or product's key characteristics are stable and in control.

Sustaining Engineering – The process whereby hardware and software capability is introduced into a system to restore the system to its as-built capabilities and performance. It includes but is not limited to the functions of product design, product fabrication or programming, product specification testing and acceptance, and product integration and test.

Sustaining Engineering Services- This definition contains typical functions associated with hardware, firmware, and software sustaining engineering for the telecommunications and computing assets used to deliver the services in the statement of work. Sustaining engineering encompasses those activities required to restore systems to their as-built capabilities and performance after a change internal or external to that system. These functions include but are not limited to:

- Plan, fabricate, develop, acquire, integrate, and modify hardware, software, or both, based on requirements changes, equipment obsolescence, and operational efficiency improvements
- Adherence to standards, architecture, functional designs, and engineering processes
- Configuration management of the system, including change requirements management and as built documentation (i.e. architecture baseline control)

System – General term representing a collection of hardware and software appropriately configured to provided intended capabilities or functionality.

System Administrator – provides IT services, network administration, file management, web page construction, or any related IT function, where the function is provided as a service to someone other than themselves, and the administrator assumes responsibility for the security control of the function or asset.

Systems Engineering Management Plan – The SEMP identifies the roles and responsibility interfaces of the technical effort and how those interfaces will be managed. The SEMP is the vehicle that documents and communicates the technical approach, including the application of the common technical processes; resources to be used; and key technical tasks, activities, and events along with their metrics and success criteria.

Systems Engineering Services- This definition contains typical functions associated with the system engineering of individual ground systems within a mission, data, or center unique service. These functions include but are not limited to:

- Review customer requirements and augment existing ground system functional requirements
- Propose modifications, enhancements, or both, to existing ground systems
- Develop and maintain functional designs of systems and subsystems
- Ensure all reviews, proposals, development, enhancements, and designs adhere to system, operational and data security requirements specified by US Federal requirements and as applicable, international standards. This includes IT security risk analysis and reporting to appropriate NASA line management.

Task Training – The lowest level of training that performance can be evaluated by a single individual supporting individual system functions and payloads.

Technical Interchange Meeting (TIM) – A meeting between two or more technical teams (shuttle, ISS, or IP) to exchange information, develop processes, and work issues.

Testing Services – This definition contains typical functions associated with hardware and software system and subsystem testing for the assets used to deliver the services in the statement of work. These functions include but are not limited to:

- Diagnostic testing
- Verification and acceptance testing
- Compatibility testing
- Test planning, activities leading to the development of test plans, procedures, resource deployment, and execution of tests
- Support validation testing and mission readiness testing

Technical Interchange Meeting – Meetings to discuss designated technical issues.

Training Mode:

Combined – A training configuration that consists of two or more training facilities (i.e. SSTF/SMTF or SSTF/COL-TRU).

Dual Integrated – One or more primary training facilities (SSTF or SMTF) operating with both the Shuttle MCC-H and Station MCC-H.

Dual Joint Integrated – One or more primary training facilities (SSTF or SMTF) operating with both the Shuttle MCC-H and Station MCC-H, and with one or more remote control centers such as MSFC.

Integrated – A primary training facility (SMTF or SSTF) operating with its primary control center (Shuttle MCC-H or Station MCC-H).

Joint Integrated – A primary training facility (SMTF or SSTF) operating with its primary control center (Shuttle MCC-H or Station MCC-H) and at least one additional remote control center.

Transition & Retirement – Refers to the efforts of operations and institutional capabilities associated with ending/completing the SSP after flight operations have concluded. This includes activities associated with production, logistics, workforce, equipment, supplier, tooling, shutdown, transfer, and disposal.

- **Transition –** facilitating the smooth transfer of program capabilities to new programs
- **Retirement –** facilitating the appropriate disposition of unneeded capabilities through defined agency processes

Transmittal Information Request Form – (TIRF) Used for formal, bidirectional communication between the Contractor and the Government.

Upgrade – Any change or modification made to a facility that improves the production speed, ease of use, and the integration with and compatibility to associated equipment or software.

User Applications – MOD user applications encompass a wide range of software developed for mission control on-console operations (planning, training, and flight), the IPS, and office management functions. The existing list of user applications consists of software ranging from new development, to periodic upgrades, to stable legacy. “Software” in this context applies to executables, scripts, data, and displays. The software may be open source, commercial off-the-shelf (COTS) / Government off-the-shelf (GOTS) / modified off-the-shelf (MOTS), contractor-developed, Government-developed, user community-developed, or co-developed by both the Contractor and the user community. Certain applications require input from and interface to IP data, software, or hardware. Multiple operating systems and host platforms support the current list of user applications.

User Community Developed (software) – software applications developed and sometimes sustained by Mission Operations personnel.

Validation – Proof that the product accomplishes the intended purpose. Validation may be determined by a combination of test, analysis, and demonstration.

Validation testing – The testing of a newly developed or modified asset (system, subsystem, assembly, subassembly or lowest replaceable element), in an operational environment, to ensure that all requirements of the specification have been met.

Verification – Proof of compliance with specifications. Verification may be determined by test, analysis, demonstration, and inspection.

Verification testing – The testing of a newly developed or modified asset (system, subsystem, assembly, subassembly or lowest replaceable element), in a non-operational environment, to ensure that all requirements of the specification have been met.

Waiver – An approved documented agreement intentionally releasing a responsible party from meeting a requirement.